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Indian Standard

IS 15883 (Part 7) : 2021

निर्माण परियोजना प्रबंधन — दिशा-निर्देश

भाग 7 प्रापण प्रबंधन

Construction Project Management — Guidelines

Part 7 Procurement Management

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भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली – 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002
www.bis.gov.in www.standardsbis.in

March 2021 **Price Group 7**

Construction Management (Including Safety in Construction) Sectional Committee, CED 29

FOREWORD

This Indian Standard (Part 7) was adopted by the Bureau of Indian Standards, after the draft finalized by the Construction Management (Including Safety in Construction) Sectional Committee had been approved by the Civil Engineering Division Council.

A construction project is an endeavour undertaken by a project team on behalf of owner/client to create a built facility suited to the defined functional objectives. From inception to commissioning, the project goes through various distinct stages leading to progressive achievement of project objectives. Each stage involves specific inputs, processes (both technical and managerial) and deliverables. Typically, the life cycle of a project from commencement to completion involves the following stages:

a) *Project appraisal* — Inception, feasibility and strategic planning;

b) *Project development* — Project brief development, planning and design, finalization of proposals, procurement strategy, construction documentation including tender drawings, construction drawings, specifications, cost estimates, bills of quantities, procurement documents;

c) *Planning for construction* — Sequencing of project components, planning tools, resource planning and time cost trade off;

d) *Tender action* — Open competitive bidding/pre-qualification of agencies, issue of tender documents, evaluation of bids, negotiation, if required and award of work;

e) *Construction* — Execution, monitoring, control, work acceptance; and

f) *Commissioning and handing over* — Contractual closeout, financial closeout, defect liability commencement, facility handing over.

The distinct features of a construction project include the temporary nature of the project team involved, the evolutionary process of project deliverables during project development stages and the unique output as the built facility. As a result of these features, unless there is efficient and effective project management, a construction project is faced with challenges of uncertainties leading to time overruns, cost over-runs, changes in project parameters, loss of quality and inability to meet the functional objectives. While technical soundness of a proposal is an important aspect of a construction project, the management aspects, which involve techno-legal, financial and other issues, have also a significant role in the success of a project. Therefore, management functions and technical processes in a construction project need to be integrated towards achieving project objectives. Top management commitment plays an important role in harmoniously achieving these project objectives. In some of the public domain projects, it may be necessary to share relevant information with public at large through appropriate means.

To provide necessary guidance on effective construction project management, a series of standards are being developed as part of IS 15883 'Guidelines for construction project management': Part 1 General, of the standard since published as IS 15883 (Part 1) : 2009, covers general aspects of overall construction project management. This has been followed by publication of other parts. The other parts in the series are:

Part 2 : 2013 on Time management
Part 3 : 2015 on Cost management
Part 4 : 2015 on Quality management
Part 5 : 2013 on Health and safety management
Part 6 : 2015 on Scope management
Part 8 : 2015 on Risk management
Part 9 : 2018 on Communication management
Part 10 : 2020 on Human resource management
Part 11 : 2021 on Sustainability management
Part 12 : 2016 on Integration management

(*Continued on third cover*)

Indian Standard

CONSTRUCTION PROJECT MANAGEMENT — GUIDELINES

PART 7 PROCUREMENT MANAGEMENT

1 SCOPE

1.1 This standard (Part 7) covers guidelines for procurement management aspects of construction project management.

1.2 The scope of this standard covers the stages subsequent to the stage of approval when a decision to implement the project including its financing is taken till commissioning and handing over of the project.

1.3 The provisions of this standard are to be read in conjunction with IS 15883 (Part 1).

2 REFERENCES

The standards listed below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
7337 : 2010	Glossary of terms in project management (*second revision*)
10400 : 2013	Glossary of terms in inventory management (*second revision*)
15198 : 2014	Glossary of terms in human resource development (*first revision*)
15883 (Part 1) : 2009	Construction project management — Guidelines General

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 7337, IS 10400 and IS 15198 shall apply.

4 GENERAL

4.1 Need for Procurement Management

Procurement process is one of the essential elements of the construction project management, through which works, goods, and services are procured in a systematic manner. Essentially, it involves initiation, management and completion of contracts leading to completion of a work, delivery of goods or conclusion of services. The process starts with the identification of the need for the works, goods or services and ends with the completion of the process. For successful procurement, it is, therefore, necessary to identify the processes, procedures, and methods in a systematic manner so that the intended milestones are achieved or deliverables are completed.

4.2 Holistic View of Procurement Management

4.2.1 Once the need for procurement is identified, for the completion of the process, generally, the following activities are to be completed and end when the transaction is completed:

a) Correctly spell out and document the need and scope of the activity;
b) Decide the procurement strategy in terms of packaging, contracting, pricing and procurement procedure;
c) Tender action;
d) Tender evaluation, negotiation etc.;
e) Award and enter into the agreement; and
f) Contract management.

4.2.2 There exist a variety of means by which the processes can be executed which depends on the size of the project, policies set in place, and the complexities of the projects. Of late, the advances in financing methods require the processes to be in tune with such complexities. Essentially, the procurement process shall have the following attributes:

a) Fairness,
b) Equitability,
c) Transparency,
d) Competitiveness,
e) Cost effectiveness, and
f) Shall fulfill other objectives like, social security, promotion of indigenous materials and processes, etc.

Government, private sector, international agencies, financing institutions and general contractors can establish their own procurement systems based on the procedures and methods prescribed by this standard.

4.2.3 Toward brevity, this standard looks at the generic systems of procurement only, but proposes to create standards which will specifically address the diverse methods of procurement.

4.2.4 The standard currently does not cover the contract management part, which shall be included later.

4.3 Organizational Structure

Organizational structure depends on the project delivery model. As an example, a typical organizational chart for procurement management in a design-bid-build model is given in Fig. 1.

4.4 Methods and Processes

The owner shall establish a documented system of procurement for use in the organization, which shall incorporate all the strategies and policies of the organization concerned. The documentation shall generally include the following:

a) Standard procurement procedures applicable to each category of procurement,

b) Essentials of documentation, reporting and approval systems,

c) Clear indication of the legal and statutory requirements, if any, which are to be followed for accepting or rejecting the offer,

d) Publicity requirements and arrangements for the calling for bids,

e) Standard forms of contract and generic industry standards which are to be incorporated,

f) Requirements of bid security, security deposit and other retention requirements and acceptable bank instruments in lieu of the same,

g) Basic insurance requirements,

h) Quality standards to be followed,

j) Health, safety and environment standards to be followed, and

k) Detailed procedures to deal with departures from specified procedures.

5 SCOPE OF PROCUREMENT MANAGEMENT

5.1 General

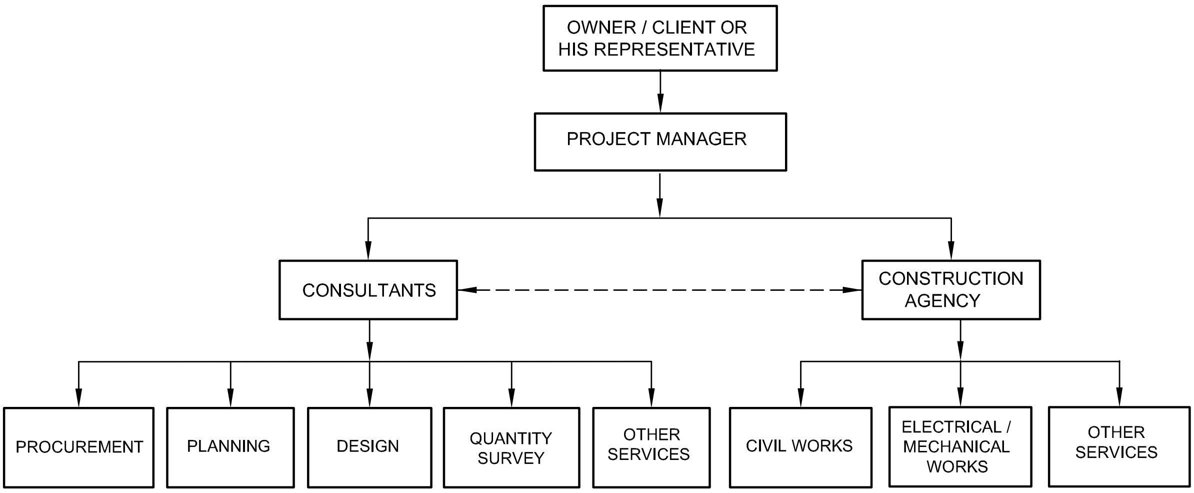
The purpose of procurement management is to establish and maintain the process and relationships with the planning and design consulting firms, contractors, vendors/suppliers all through the project duration. The procurement management plan for the project shall be prepared and defined as part of the planning stage and shall be applied and updated for construction activities.

5.2 Procurement Types

The types of procurement can be broadly classified based on the requirement of the project as works, services, and goods. The procurement in construction project includes the selection of contractors for works, selection of consultants for design and services, and selection of vendors for supply of plant and equipment/ materials/goods.

5.2.1 *Works*

The work shall mean all physically built activities related to construction carried out by the contractors. The procurement could be publicly funded, privately funded or through public-private participation. Depending on the project requirement, broadly two different types of procurement routes/strategies/ methods are used for the delivery of works, that is, traditional delivery system and other delivery systems as shown in Fig. 2.



NOTE — 'CONSULTANTS' MAY COVER IN-HOUSE TEAMS OR OUTSIDE CONSULTANTS.

Fig. 1 Typical Organization Structure for Procurement Management in Design-Bid-Build Model

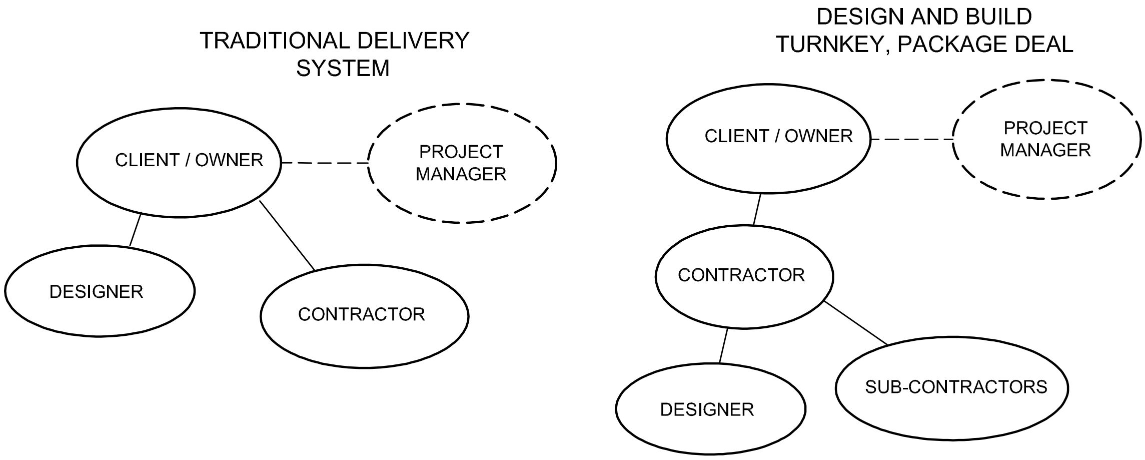


FIG. 2 PROCUREMENT ROUTES/STRATEGIES/METHODS

5.2.1.1 In the traditional route, the process will be a design-bid-build form of procurement. In this the owner/client/employer is responsible for providing the preiliminary design and drawings, technical specifications, bill of quantities (BOQ) and detailed designs and drawings. In this system, preliminary drawings (tender drawings) and BOQ are provided at the time of bidding, following which the bidders quote rates, percentage based on the BOQ or a lump-sum price.

5.2.1.2 *Types of contracts under traditional routes*

Depending upon the procurement route/strategy/method chosen and based on the degree of clarity of scope, level of preparation of designs, time, flexibility and availability of finance the resulting contracts may take any of the forms as given hereunder:

a) *Rate contract* — Each item shall use the pre-determined rate for the execution of works. Quantities may not be specified in the contract, and the contractor shall execute any quantity within stipulated time during the validity period of the contract.
b) *Item rate contract* — The contractor quotes the unit price for each item in the BOQ during the tender stage and undertakes the execution of work on the accepted item rate. The payment is released based on certified measurement of the actual quantity of each item executed.
c) *Percentage contract* — The Employer provides the schedule of rates with the item, unit rate, and quantities. The contractor quotes the percentage above or below the schedule of rates.
d) *Lump-sum contract* — The contractor quotes the price as a single tendered amount. The contractor shall include all employers' requirements and shall comply with provisions of the contract. The employer shall not pay for any missing detail/item or make any price adjustment subject to the contract conditions and scope.

5.2.1.3 *Other delivery systems*

Other routes of procurement are as follows:

a) *Design and build* — In this the owner/client/employer provides detailed scope, the performance specifications and design basis report at the time of bidding. The design, as well as the construction, is the responsibility of the contractor.
b) *Engineering, procurement and construction (EPC)* — The employer shall provide the basic concept and drawings along with the budget amount at the tendering stage. The contractor is responsible for all engineering, procurement and construction including commissioning and handing over. He shall be responsible for removal snags and routine maintenance of facility during the defect liability period.
c) *Turnkey contract* — The employer shall provide the performance requirements to the contractor who shall design, execute the works and demonstrate the performance of the facility based on an agreed price within stipulated time.
d) *Public-private partnership (PPP)* — Public sector entity (employer) enters into a contract with a private entity or consortium to finance, construct and operate an asset/facility that may also provide services for design. This arrangement is suitable for long-term projects aiming at cost-recovery model within the concession period. The selected private entity would be responsible for procurement, construction, operation, and maintenance for a specific period. The contractor shall transfer the facility to the client/employer on successful completion of services. The employer shall provide a brief description of the requirements and estimate at the tendering stage. PPP projects may take several forms as follows:
    1) Build, Own, Operate and Transfer (BOOT),
    2) Build, Own and Operate (BOO),

3) Build, Operate, Lease and Transfer (BOLT),
4) Build, Operate and Transfer (BOT),
5) Design, Build, Operate and Transfer (DBOT),
6) Design, Build, Finance, Operate and Transfer (DBFOT), and
7) Hybrid Annuity Model (HAM).

5.2.1.4 *Disposal of waste*

The procurement process applicable for works shall also be applicable for dismantling the existing structures and disposal.

5.2.2 *Goods, Materials, Plant and Equipment*

5.2.2.1 *Supply of goods, materials and plant and equipment*

For incorporation in the works, the employer may separate the supply of goods, materials and plant and equipment from works contract. Generally, the bill of quantities of works contract shall cover supply and installation of following items:

a) *Goods* — The Goods shall mean articles or commodities in the works or used in the works and would be manufactured articles.
b) *Construction Material* — Any material used in works that can be from naturally available sources or manufactured for construction works.
c) *Plant and Equipment* — It is mechanical/electrical/IT items for the works. The employer may use a separate contract for supply or lease of any special equipment for works.

5.2.3 *Services*

5.2.3.1 *Professional services*

For the design and construction, the employer may seek professional services like financial planning consultants, civil and architectural firms, design and consultancy firms, operational and facility managers. These professional services may be involved either separately or in some combination by the employers. Selection of these services depends on the type of construction and the experience of the employer in dealing with various professionals in the previous projects undertaken by the firm.

The employer may use information technology (IT) for effective project management. A customized tender document may be prepared based on the need and scope of the IT vendor/supplier. The scope of the vendor/consultant ranges from design, supply, implementation, operations and maintenance for a specific period. The vendor/supplier shall be responsible for implementing the solution which meets all features, functions and performance requirement as described in the tender document. The employer may also need application support which consists of troubleshooting and addressing the functional requirements, availability and performance issues, etc. Further, the vendor will be required to undertake a study of best practices and benchmark the designed solution against market best practices.

5.2.3.2 *Labour*

Labour is the human resource used in construction. Labour can be skilled, semi-skilled or unskilled. The contractor undertakes contract for the labour part only excluding the construction materials and equipment which are arranged at the work site by the Employer. The contractor engages the necessary labour and gets the work done as per drawings and specifications. Labour can be on item rate basis for labour part only, and the contractor gets paid for the quantities of work done on measurements of different items of work at the stipulated rate in the contract agreement. The contractor shall comply with all statutory requirements for engaging labour and other personnel involved in the construction.

5.3 Scope during Pre-Construction Stage

The procurement management scope during pre-construction stages includes the following:

a) Need assessment,
b) Developing specifications,
c) Forming a procurement plan,
d) Procurement inception report,
e) Estimates and approvals,
f) Preparation of tender documents,
g) Bid process management, and
h) Award of contract.

5.4 Scope during Construction Stage

The procurement management scope during construction stages includes the following: (a) Procurement schedule, (b) Procurement management plan, (c) Procurement operations, and (d) Contract Management.

5.5 Scope during Post-Construction and Closure Stage

The procurement management scope during post-construction and closure stages includes the following:

a) outcome of procurement operations, and
b) lessons learnt.

6 PROCUREMENT MANAGEMENT

6.1 Procurement Planning

6.1.1 *General*

Procurement planning is key to a successful procurement process. The effort and time invested in procurement planning will prevent time and cost overruns during subsequent procurement operations. The three stages of procurement planning are:

a) need assessment,
b) developing specifications, and
c) forming a procurement plan.

6.1.2 *Procurement Requirements*

The first step in the procurement process is assessing the requirements for the project involving various stakeholders. The employer may prepare a template to request information like scope, quantity, technical specification, terms of reference and timeline. Based on the requirements, the employer shall further develop a detailed specification and decide the technical and commercial aspects of the procurement plan.

6.1.3 *Procurement Strategy (Inception Report)*

The employer shall develop a procurement strategy based on the finalized procurement requirements. The approach shall essentially cover:

a) objectives for the project,
b) required outcomes,
c) performance measures,
d) aspects of governance, economic, social and environmental,
e) technology,
f) project risks, and
g) procurement routes.

6.1.4 *Procurement Process*

6.1.4.1 *Flow chart*

See Fig. 3.

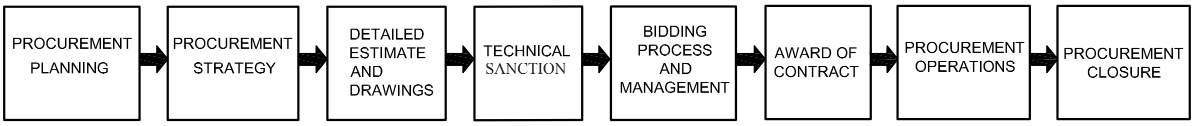


FIG. 3 FLOW CHART

6.1.4.2 *Procurement plan*

The procurement plan is an outcome of procurement planning. The procurement plan describes how the project procurement activities support objectives of the project and deliver value for money under a risk-managed approach. The scope and details of the procurement plan take into account and are proportional to, the relevant market, scale, risk, value, including, when applicable, situations of the urgent need of assistance or capacity constraints, and the specific economic, environmental, and social objectives of the project. The procurement plan shall discuss the specific contracts for the goods, works, and services required and the proposed methods for procurement. The plan shall include monitoring and control mechanisms, methodology for change management and risk mitigation measures.

6.1.5 *Procurement Documents*

6.1.5.1 *Estimates*

The preliminary estimate shall be prepared based on the initial drawings and specifications, etc. The preliminary assessment shall appropriately indicate in the history sheet the items that are included or excluded in the estimate.

The preparation of detailed estimate and drawings and designs should be taken up only after ascertaining that the site is available, or likely to be made available within a reasonable time without any encumbrances. The detailed estimate should give full details for each item of the work involved along with specifications. The detailed estimate shall use the rates provided in the schedule of rates for those items of work covered by it, and by analysed market rates for the remaining items.

6.1.5.2 *Technical approval*

The technically competent authority of user agency/department shall review the detailed estimate and drawings to ensure that proposals are technically sound and that the cost estimate is accurately prepared based on adequate data. The employer shall issue notice inviting tender (NIT) based on the technical approved estimate.

6.1.5.3 *Pre-qualification/request for qualification (RFQ)*

The employer shall examine whether pre-qualification is essential in view of nature and complexities in the project and available time. Pre-qualification ensures that invitations to bid are extended only to those who have adequate capabilities and resources. Prequalification shall be based entirely upon the ability and resources of prospective bidders to perform the particular contract satisfactorily, taking into account their (a) experience and past performance on similar contracts, (b) technical capabilities and (c) financial capabilities.

6.1.5.4 *Request for bid (RFB)*

The objective of RFB is to provide all eligible prospective bidders with timely and adequate notification of an employer's requirements and an equal opportunity to bid for the required goods, services or works. The bidding documents shall clearly state the type of contract to be entered into and contain the proposed contract provisions impacting the bid. The size and scope of individual contracts will depend on the magnitude, nature, and location of the project.

The RFB shall provide clear instructions on how bids should be submitted, how prices presented, and the place and time for submission of proposals. Time for preparation and submission of bid proposal should be adequate. The procedures shall provide for fair competition to ensure reasonable prices, and methods used in the evaluation of bid proposals and the award of contracts shall be objective and made known to all bidders in the bidding documents and not be applied arbitrarily. The procedures shall also include process of bid opening, evaluation, publication of results and award of contract.

6.1.5.5 *Conditions of contract*

In any RFB, the conditions of contract shall comprise the following two parts:

a) *General conditions of contract (GCC)*

   The general conditions set the minimum performance requirements and include the rights and responsibilities of the parties to contract. The employer may adopt FIDIC conditions of contract with due authorization. The standard text of the general conditions chosen must be retained to facilitate its reading and interpretation by bidders and its review by employer.

b) *Particular conditions of contract (PCC)/Special conditions of contract (SCC)*

   Any amendments and additions to the GCC, specific to the contract in hand, should be introduced in PCC/SCC. Clause numbers in the PCC/SCC should correspond to those in the GCC, and the PCC/SCC takes precedence over the GCC.

6.1.5.6 *Specifications/employers requirements*

Detailed and clear specifications are a prerequisite for bidders to respond realistically and competitively to the requirements of the employer without qualifying or conditioning their bids. The specifications should require that all materials, plant, and other supplies to be incorporated in the works are new, unused, of the most recent or current models, and include all recent improvements in design and materials unless provided otherwise in the contract. The specifications should cover classes of craft, materials, and equipment commonly involved in construction, although not necessarily to be used in a particular works contract. Deletions or addenda should then adapt the general specifications to the specific works. The employer shall ensure that the specifications are not restrictive.

6.1.5.7 *Bill of quantities (BOQ)*

The employer shall estimate the quantities from the drawings wherever applicable and necessary. The items in the BOQ should be grouped into sections to distinguish between those parts of the works, which by nature, location, access, timing, or any other distinctive characteristics, may give rise to different methods of construction, phasing of the works, or considerations of cost. The employer may group general items common to all parts of the works as a separate section in the BOQ. Consistent with these requirements, the layout and content of the BOQ should be as brief and clear as possible. The BOQ shall provide sufficient information on the quantities of works to be performed to enable bids to be prepared efficiently and accurately, and assist employer in the periodic valuation of works executed.

6.1.5.8 *Drawings*

The employer shall provide construction drawings, even if not fully developed, which must show sufficient details to enable bidders to understand the type and complexity of the work involved and to price the bill of quantities. The employer shall ensure that the drawings are prepared to the appropriate scale and readable. A simplified site plan showing the location of the site with the local geography, including major roads, ports, airports, and railroads, is helpful.

6.1.5.9 *Rate analysis/schedule of rates*

The employer may prepare a schedule of rates (SoR) for each item/type of work commonly executed by the contractor and should be maintained up-to-date by the respective tendering authority. SoR shall use the rates prevailing in each work area, and necessary analysis of the prices for each description of work and the varying conditions thereof should, so far as practicable and recordable. The employer may provide access to the SoR documents to facilitate the preparation of estimates, as also to serve as a guide in settling rates in connection with contract agreements.

6.1.5.10 *Market quotations*

An employer may obtain market quotations for the items not specified in the schedule of rates. The average price of not less than three quotes shall be used to ascertain the market price. An engineer's estimate prepared adopting market price at the time of the bidding process may be useful for the price bid evaluation.

6.1.5.11 *Agreements*

The employer shall prepare and attach contract forms. Documents, such as letter of acceptance, contract agreement, performance security, and advance payment security will form part of the contract.

The forms for performance security and advance payment security, when required, shall only be completed by the successful bidder after contract award.

6.1.6 *Procurement Schedule*

The procurement schedule lists all the items to be procured and relevant actions in each stage of procurement expected to be carried out by the contractor over the project period. The finalized procurement schedule establishes the timelines for carrying out each step in the procurement process up to the fulfillment of the requirement.

6.1.7 *Procurement Management Plan*

The employer shall prepare the project-specific procurement management plan (PMP) while developing a project management plan. The PMP shall describe the procedures on procuring goods during the project and managing vendors effectively. The PMP may essentially include but not limited to:

a) project needs and how to purchase,
b) procurement process, time and roles and responsibilities,
c) approval process, and
d) potential vendor list and credentials.

6.1.8 *Procurement Action*

The employer shall encourage and continually modernize their procurement systems including procurement through electronic means (e-tender) to facilitate transparency and efficiency in the procurement process. Any e-tender system shall be accessible and secure, ensure integrity and confidentiality, and have sufficient audit trail features.

6.1.8.1 *Publicity*

The employer shall advertise the tender in the national and local newspapers depending on the size of the project to ensure adequate competition. The employer shall also upload the tender documents in a free assessable website.

6.1.8.2 *Mode of call (e-Tender)*

The employer shall recommend e-tender tools for communications with bidders, advertisements, notices and amendments, distribution of procurement documents, submission of bids or proposals, and disclosure of contract awards. The employer shall ensure that these arrangements are adequate, efficient, and secure, and should not prevent the participation of potential bidders.

6.1.8.3 *Notice inviting tender (NIT)*

Notice inviting tender/bid shall clearly state the system of receiving and processing of the tender/bid, which can be either:

a) Single envelope bid, or
b) Two envelope bid.

In case of single envelope bid system, technical as well as financial/price are contained in the same envelope and evaluation made at the same time. In case of two envelope bid system, technical evaluation is made first and those who are qualified in the technical evaluation are processed for the financial/price evaluation.

NIT shall have all essential details of the bidder's qualifications and experience, cost of the tender documents and sale details, bid security amount, pre-bid meeting date and venue, bid submission details. The eligible bidders should have the option to download the bidding document from the employer's website, and such bidders shall be required to submit the cost of bidding document with their bid in the form of a bank demand draft or other modes of payment as indicated in the bidding document.

6.1.8.4 *Pre-bid meeting*

The employer shall conduct a pre-bid meeting preferably after two weeks from the issue of NIT and all queries clarified before not less than one week from the date of submission of bids. Bidders shall use the pre-bid meeting to get clarifications of any questions related to the as-issued bidding document. A site visit may also be arranged by the employer before the pre-bid meeting, if necessary for the bid proposal preparation, and the date of the site visit should be available in the bidding document.

6.1.8.5 *Corrigenda and addenda*

The employer shall issue corrigenda in case there is a change in the submission date or revision in bid qualifications and conditions and addenda in case any additional information/data is given after issue of tender documents. The employer shall consider the request from the bidders to extend the bid submission date, if necessary. Changes agreed by the employer as a result of pre bid meeting should also be in the form of corrigenda/addenda.

6.1.8.6 *Bid receipt*

The employer must receive bids at the designated address and no later than the date and time indicated in the bidding document. The employer shall not consider any bid that arrives after the deadline for submission of bids. Any bid received by the employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the bidder. Bids requested for withdrawal shall be returned unopened to the bidders. No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the bidder on the letters of technical bid and price bid or any extension thereof.

6.1.8.7 *Bid opening and processing*

Bids shall be opened by a designated authority committee constituted for the purpose in the presence of representatives of bidders at the date, time and place given in the instructions to bidders.

Bids requested for withdrawal shall be returned unopened to the bidders. No bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the bidder on the letters of technical bid and price bid or any extension thereof. Any bid which is without the mandatory bid security/earnest money from a proper bank will not be processed further and will be treated as unresponsive.

6.1.8.7.1 *Technical bid*

The employer shall examine the technical bid to confirm that all documents and technical documentation requested in the bidding document are available to determine the completeness of each bid document submitted. The employer's determination of a bid's responsiveness is to be based on the contents of the bid itself, as defined in the instruction to bidders. A substantially responsive technical bid is one that meets the requirements of the bidding document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that, if accepted, would affect in any substantial way the scope, quality, or performance of the works specified in the contract. The employer shall determine to its satisfaction during the evaluation of technical bids whether bidders meet the qualifying criteria specified.

6.1.8.7.2 *Financial/price bid*

An affirmative determination of the substantially responsive technical bid shall be a prerequisite for the opening and evaluation of a bidder's price bid. An adverse decision shall result in the disqualification of the bid, in which event the employer shall return the unopened price bid to the bidder.

6.1.8.7.3 *Price bid evaluation*

The employer shall use the criteria and methodologies listed in this bidding document and no other evaluation criteria or methods permitted for evaluation. If the lowest evaluated bid price is seriously unbalanced, front-loaded or substantially below updated estimates in an admeasurement contract, the employer may require the bidder to produce detailed price analyses for any or all items of the bill of quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the timing of estimated contract payments, the employer may require increased performance security at the expense of the bidder to a level sufficient to protect the employer against financial loss in the event of default of the successful bidder under the contract.

Bid information relating to the examination, evaluation, comparison, and post-qualification of bids and recommendation of contract award, shall not be disclosed to bidders or any other persons not officially concerned with such process until the contract awarded. Any attempt by a bidder to influence the employer in the evaluation of the bids or contract award decisions may result in the rejection of its bid. If any bidder wishes to contact the employer on any matter related to the bidding process, it may do so in writing.

6.1.8.8 *Negotiation*

Negotiation shall be conducted where it is absolute necessary. The employer shall avoid such kind of negotiation that alters the responsiveness and qualities of the bid proposal.

6.1.8.9 *Acceptance and notification of award*

The employer shall award the contract to the bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the bidding document, provided further that the bidder is determined to be qualified to perform the contract satisfactorily. Before the expiration of the period of bid validity, the employer shall notify the acceptance of the bid to the successful bidder, in writing. Until a formal contract is prepared and executed, the notification of award in the form of 'Letter of Acceptance' shall constitute a binding contract.

6.1.8.10 *Performance security/performance guarantee (PG)*

The successful bidder shall furnish the performance guarantee (PG) following the conditions of contract within a stipulated period as indicated in the bidding document. The employer shall include the PG form in the bidding document. The bidder may also submit a performance security document in an acceptable form to the employer. Failure of the successful bidder to submit the PG or to sign the contract agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security. In that event, the employer may award the contract to the next lowest evaluated bidder whose bid is substantially responsive and is determined by the employer to be qualified to perform the contract satisfactorily.

6.1.8.11 *Signing of contract*

The employer shall sign the contract agreement with the successful bidder who complies with the PG requirements and determined to be qualified to perform the contract satisfactorily.

6.1.8.12 *Debriefing*

The unsuccessful bidders may seek clarification from the employer, which shall be provided.

6.1.9 *Procurement Inception Report*

The contractor shall prepare a procurement inception report based on (a) procurement plan, (b) procurement schedule and (c) discussion with all the stakeholders of the project. The contractor shall discuss the program and schedule in the inception report in detail and suggest an action plan for achieving the timeline as agreed with the employer. The contractor shall present the inception report and obtain concurrence from the employer. If required, the procurement plan and procurement schedule may be revised based on the suggested timeline in the inception report. The employer shall provide a template for the procurement inception report immediately after the mobilization of the contractor.

6.2 Procurement Monitoring

6.2.1 *General*

Procurement consists of all processes required to acquire/purchase/appoint any works/goods/services for the project. Procurement monitoring is the process of monitoring the procurement plan for its successful completion of procurement action.

6.2.2 *Monitoring Schedule*

6.2.2.1 *Need*

The monitoring of the procurement schedule includes tracking of stage-wise progress to avoid coordination issues, resource conflicts and overruns. The schedule shall be monitored to ensure the quality of planned deliverables.

6.2.2.2 *Process*

A planning tool for example, Gantt chart, PERT, etc. may be used to monitor schedule. Any computer based software for monitoring the schedule may also be used. The main inputs for these tools are work breakdown structure (WBS), activity linkages and time duration. Procurement schedule shall be monitored at different stages by using following data:

a) *Pre-construction stage* — Documents required for monitoring schedule at pre-construction stage include:
   1) Procurement plan,
   2) Schedule for procurement of services/ consultants,
   3) Schedule for procurement of goods,
   4) Tender event schedule for work packages, and
   5) Payment tracker.

b) *Construction stage* — Documents required for monitoring schedule during construction stage include:
   1) Procurement plan,
   2) Schedule for procurement of services/ consultants,
   3) Schedule for procurement of goods,
   4) Tender event schedule for work packages,
   5) Payment tracker,
   6) Contract document for all goods/services/ work packages, and
   7) Contract management.

c) *Post-construction and closure stage* — Documents required for the post-construction stage include:
   1) Audit schedule, and
   2) Document schedule including a list of documents to be submitted during handover.

6.2.3 *Management Information System (MIS)*

6.2.3.1 *General*

MIS is generally a computer-based information system for the managers. It consists of the tools and techniques used to collect inputs, integrate, evaluate and communicate the outputs of procurement management processes.

6.2.3.2 *Need*

MIS is used to inform the management about procurement progress and seek inputs or suggestions for critical approvals. It helps to plan, execute and close procurement management goals by a collaborative approach. MIS reports shall be prepared weekly or monthly as per the scale of the project.

6.2.3.3 *MIS constituents*

MIS reports shall be used at pre-construction, construction and post-construction stages as given below.

a) *At pre-construction stage*

   Documents required for MIS at pre-construction stage include:
   1) Project summary, including a project brief, project team, organizational chart of different stakeholders, project directory, contract summary;
   2) Procurement plan;
   3) Schedule for procurement, of services/ consultants;
   4) Schedule for procurement of goods;
   5) Tender event schedule for work packages;
   6) Roles and responsibility matrix;
   7) Risk register including identified risks, their impact, severity and stakeholder responsible;

8) Payment tracker, including pre-construction approval, during and post-construction approval, labour compliance, bank guarantee update; and
9) Drawing/deliverables status.

b) *At construction stage*

Documents required for MIS during construction stage include:

1) Procurement plan;
2) Schedule for procurement of services/consultants;
3) Material procurement status, for goods for example, cement, steel, bricks;
4) Tender event schedule for work packages;
5) Risk register, including identified risks, their impact, severity and stakeholder responsible;
6) Construction schedule, including planned *versus* actual start/finish of activities;
7) Payment tracker, including pre-construction approval, during and post-construction approval, labour compliance, bank guarantee update; and
8) Drawing/deliverables status.

c) *At post-construction and closure Stage*

Documents required for MIS post-construction stage include:

1) Budget summary including budget status;
2) Audit status; and
3) Document status, including a list of document to be submitted during handover.

6.2.4 *Communication*

6.2.4.1 *Need*

Communication throughout the procurement enables the flow of relevant information among stakeholders. It ensures the tracking of processes for efficient delivery.

6.2.4.2 *Communication methods*

a) *Management Information System* — As discussed in **6.2.3**, MIS can be used as a tool for monitoring communication among stakeholders.
b) *Progress Reviews* — The procurement team evaluates progress on the basis of the work done. It is required for assessing the need for intervention, responsibility for taking further actions and the timeframe for implementing the changes.
c) *Meetings* — Meetings are formal/informal discussions with the procurement team to determine the required information from stakeholders. These meetings help to evaluate procurement progress, exchange suggestions and make critical decisions.

6.2.4.3 *Communication plan*

A communication plan shall be made for monitoring communication among stakeholders which includes:

a) Data requirement of stakeholders;
b) Reason for circulation of data;
c) Timeframe and frequency of circulation; and
d) Individual or group responsible for communication.

6.2.5 *Document Management*

6.2.5.1 *Need*

All documents related to various processes of procurement shall be maintained and managed. The document shall be stored in a safe place for easy access in case of audits, references or legal disputes.

6.2.5.2 *Type of document*

Various procurement processes for example, collecting information, soliciting offers and finalizing the contract shall have different procurement documents. Some of these are:

a) Procurement strategy document (inception report);
b) Request for information (RFI)/Expression of interest (EOI);
c) Bid/tender documents:
    1) Notice/invite for bid/tender,
    2) RFQ/RFP (including pre-qualification):
        i) Bill of quantities,
        ii) Specifications (employer’s requirement),
        iii) Drawings, and
        iv) Acceptance criteria.
    3) Addendum/corrigendum issued during procurement process
    4) Contract conditions (GCC and SCC)
d) Bid proposals;
e) Purchase orders/work orders; and
f) Any amendment in these documents.

6.2.5.3 *Structure of the document*

The procurement document shall be standardised, preferably using a uniform format for better work-flow, simplification and to avoid repetitive work. All documents shall be comprehensive and wherever required must specify in detail, for example terms and conditions, methods of payment, milestones, and work to be delivered. If any supporting document is required then it shall be clearly mentioned in the references. The structure of the document shall have well-defined headings and sections in order to facilitate prospective bidders for providing necessary details.

6.2.5.4 *Maintaining the document*

Internal (within the procurement team) and external (contractor, vendors and consultants) document shall be maintained even after the completion of the procurement. The duration for which these documents are retained shall be determined through the document retention policy of stakeholders. Amendments or updates in any of the documents shall be communicated to stakeholders and prospective bidders. The procurement document shall be maintained as an e-document through computerization.

6.2.6 *Pre-completion Finalization*

It shall be ensured that all the deliverables of the procurement process are met and in accordance with the acceptance criteria before completion. The following work shall be ensured for pre-completion finalization:

a) Verification of work done and deliverables;

b) Maintaining a record of negotiations, claims, invoices etc.;

c) Financial closure;

d) Auditing of processes for any malpractice or ambiguity; and

e) Amendments in procurement documents are up to date and circulated.

6.3 Procurement Control

6.3.1 *General*

It is recommended that employers put in place several panels/committees for managing and controlling the procurement. Panels can be assigned for document reviewing, evaluation, and awarding the contract.

6.3.2 *Review of Procurement Document*

The procurement document should be reviewed with a view to conforming that,

a) the procurement documents have been formatted and compiled in accordance with the requirements of the employer’s procurement policy/guidelines;

b) the selected form of contract is appropriately suitable for the construction;

c) the relevant standard employer’s templates have been correctly applied during the procurement process;

d) the selected contract data or tender data options are likely to satisfy procurement objectives and are likely to yield best-value outcomes; and

e) the scope of work adequately establishes what is required and the constraints to the manner in which the contract work is to be provided.

The sections of the document, if any, which require amendments or improvements should be identified by the panel.

6.3.3 *Control Measures in Tender Evaluation*

Following measures should be taken in tender evaluation:

a) Determine whether or not submissions or tender offers were responsive to requirements established in the procurement documents;

b) Evaluate submissions in accordance with the qualification criteria and procedures established in the procurement documents;

c) Determine whether or not there are any grounds for disqualification;

d) Determine the acceptability of preferred tenderers or respondents (legal compliance, capability, capacity and commercial risk); and

e) Prepare a tender-evaluation report, prequalification, shortlisting or approved listing report, as relevant, complete with recommendations, which clearly states the reasons for overlooking a tenderer or respondent.

Records of all communications with tenderers during the procurement process to obtain information and clarifications should be made and retained for auditing purposes.

6.3.4 *Control Measures in Awarding the Contract*

Following measures should be taken in awarding the contract:

a) Verify compliance of the established procurement process and procedures;

b) Confirm the integrity of the process;

c) Determine whether successful bidder submitted factual documents, if required;

d) Confirm the reasonableness and correctness of reasons provided for the elimination of tenderers; and

e) Approve the award of the contract.

6.3.5 *Interaction with other Processes like Time and Cost*

Procurement process shall be monitored and controlled at each stage of the project to avoid time and cost overruns as given in **6.3.5.1** to **6.3.5.3**.

6.3.5.1 *Change control system*

It defines the methodology for making any amends in the procurement process. It may include the tracking schedule, dispute resolution procedures, approval(s) required for changes and its impact on the project timeline.

6.3.5.2 *Procurement performance reviews and audits*

Procurement data and reports shall be evaluated against the agreement requirements and documented. It shall then be tracked against the set milestones to deliver project scope within cost and on schedule, as per the contract.

6.3.5.3 *Payment records*

All the payments to the third party shall be processed by the accounts payable system and documented in accordance with the terms of the contract and against achieved milestones.

6.3.6 *Change orders*

Any task which is added or deleted from the original scope of contract during procurement of works/goods/services is to be properly documented and maintained in the form of change order throughout the project life.

6.3.6.1 *Need*

Changes needs to be controlled early including documenting changes, its impact on the contract and developing a change order. Change order is to be referred later in case of conflict among team members when the team cannot agree on the change. Controlling and implementing the change management process will minimize this conflict and avoid any negative effect on the project.

6.4 Procurement Closure

6.4.1 *General*

It is the process of completing each procurement of works/ goods/ services as per procurement management plan. All agreements and related amendments shall be documented and maintained for future reference. The contract terms and conditions shall prescribe specific procedures for agreement closure.

6.4.1.1 *Procurement audits*

A procurement audit is a structured review of the procurement process starting from the procurement management plan to procurement closure. The objective is to identify successes and failures during the procurement lifecycle that shall form the basis of preparation of other procurement contracts on the project.

6.4.1.2 *Document management system*

For maintaining closure documents, a document management system shall be used to manage contract and procurement documents and records as part of the closure process.

6.4.2 *Physical Closure*

It includes closure of administrative activities such as finalizing open claims, updating records and documenting procurement information. The closure process ensures contractual agreements are completed or terminated. Early termination of a contract is a special case of procurement closure that can result from a mutual agreement by both parties. In such case, the responsibilities of the parties are contained in the termination clause of the contract. Based on these terms and conditions, the employer may have to compensate the employee for preparations or for any completed and accepted work related to the terminated part of the contract.

6.4.3 *Financial Closure*

It includes the closure of financial activities, such as making final payments, settlement of all claims, invoices and completing cost records.

6.4.4 *Final Dispute Settlement*

During procurement process, the final settlement shall be done of all outstanding issues, claims, and disputes by negotiation. When settlement cannot be done through direct negotiation, other forms of alternative dispute resolution mechanisms including mediation, arbitration and litigation may be exercised as per the contract.

6.4.5 *Lessons Learnt*

Lessons learnt is a summary of procurement experience and process improvement recommendations. It includes information on schedule, scope, quality and cost performance along with all amendments, payment terms, audit results and shall be documented for the project file to improve future procurements.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Construction Management (Including Safety in Construction) Sectional Committee, CED 29

Organization	*Representative(s)*
In Personal Capacity (*102, Sraddha Temple Tree, Rustom Bagh, Old Airport Road, Bengaluru*)	Shri P. Krishnan (***Chairman***)
AECOM India Pvt Ltd, Gurugram	Shri Pawan Jaipuriar Shri Arvind Agrawal (*Alternate*)
Airports Authority of India, New Delhi	Shri G. D. Gupta Shri M. N. N. Rao (*Alternate*)
Builders' Association of India, Mumbai	Shri H. S. Pasricha Shri Sanjay Soni (*Alternate*)
Central Public Works Department, New Delhi	Shri M. K. Sharma Shri Sanjeev Rastogi (*Alternate*)
Construction Industry Development Council, New Delhi	Shri P. R. Swarup Shri O. P. Gupta (*Alternate*)
Construction Skill Development Council of India, New Delhi	Shri Anand Kumar Singh Ms Jancy Mathew (*Alternate*)
Creative Design Consultants & Engineers Pvt Ltd, Ghaziabad	Shri Aman Deep
CSIR-Central Building Research Institute, Roorkee	Dr Achal K. Mittal Dr Ajay Chaurasia (*Alternate*)
Delhi Development Authority, New Delhi	Engineer Member Chief Engineer (Design) (*Alternate*)
Delhi Metro Rail Corporation Ltd, New Delhi	Shri Pramit Kumar Garg Shri Ravi Kapoor (*Alternate*)
EH and S Cares, New Delhi	Shri A. K. Tripathi
Engineers India Limited, New Delhi	Shri Amitava Pal Shri Ravindra Kumar (*Alternate*)
GMR Infra and Airport, New Delhi	Representative
Hindustan Construction Company Ltd, Mumbai	Shri Satish Kumar Sharma Shri Avinash Harde (*Alternate* I) Ms Pooja Deshmukh (*Alternate* II)
Hindustan Prefab Limited, New Delhi	Chairman-cum-Managing Director Shri S. K. Jain (*Alternate*)
Indian Buildings Congress, New Delhi	Shri Deepak Narayan
Indian Institute of Technology Delhi, New Delhi	Dr K. C. Iyer Dr J. Uma Maheshwari (*Alternate*)
Kaleidoscope, Noida	Shri Amor Kool
Larsen and Toubro Ltd, Chennai	Shri M. P. Naidu Shri R. Shankar Narayanan (*Alternate*)
M. N. Dastur & Company (P) Limited, Kolkata	Shri Soumik Sen Shri Alakes Bhattacharyya (*Alternate* I) Shri Agni Gupta (*Alternate* II)

Organization	*Representative(s)*
Military Engineer Services, Engineer-in-Chief's Branch, Integrated HQ of MoD (Army), New Delhi	Brig M. J. Kumar Col Y. S. Dhaka (*Alternate*)
Ministry of Statistics & Programme Implementation, New Delhi	Deputy Director General (PI) Director (IPMD) (*Alternate*)
NBCC (India) Ltd, New Delhi	Shri Alok Rastogi Shri P. S. Rao (*Alternate*)
National Institute of Construction Management and Research, Mumbai	Dr Anil Agarwal Dr Arun Chandramohan (*Alternate*)
NTPC Ltd, New Delhi	Shri Anil Kapoor
NITI Ayog, New Delhi	Shri Shatrughan Lal Shri Sanjay Kumar (*Alternate*)
PMI Organization Centre Pvt Ltd, Mumbai	Shri Suvarna Naikdesai Shri Sesha Sai (*Alternate*)
School of Planning & Architecture, New Delhi	Prof V. K. Paul Shri Abhijit Rastogi (*Alternate*)
Shelter Consulting Engineers, Noida	Shri Manoj Kumar Mittal
STUP Consultants, Mumbai	Representative
The Institution of Engineers (India), Kolkata	Shri Bipin Chand
In personal capacity (*B-31, Manas Apartments, Mayur Vihar-1 Extension, Delhi*)	Shri V. K. Sharma
In personal capacity (*Flat No. 220, Ankur Apartments, Patparganj, Delhi*)	Dr V. Thiruvengadam
In personal capacity (*411, Sector A, Pocket-C, Vasant Kunj, New Delhi*)	Shri Krishna Kant
In personal capacity (*204, Sector A, Pocket-C, Vasant Kunj, New Delhi*)	Dr Vanita Ahuja
In personal capacity (*7A, Autumn Hue*, *Seasons, PPD Apartments, Kuravankonam, Kowdiar,* Thiruvananthapuram)	Shri Jose Kurian
In personal capacity (*411, Technology Apartments, Patparganj, Delhi*)	Shri R. P. Lahiri
In personal capacity (*P1/2, Block 2, Silver Estate Sector 50, Noida*)	Brig Vinod Nakra (Retd)
BIS Directorate General	Shri Sanjay Pant, Scientist 'F' and Head (Civil Engineering) [Representing Director General (*Ex-officio*)]

Member Secretary

Shri Abhishek Pal
Scientist 'C' (Civil Engineering), BIS

Panel for Construction Project Management, CED 29/P1

Organization	*Representative(s)*
In Personal Capacity (*102, Sraddha Temple Tree, Rustom Bagh, Old Airport Road, Bengaluru*)	Shri P. Krishnan (***Convener***)
Central Public Works Department, New Delhi	Chief Engineer-CSQ Shri Sanjeev Rastogi (*Alternate*)
Creative Design Consultants and Engineers (P) Ltd, Ghaziabad	Shri Aman Deep
Delhi Tourism and Transportation Development Corporation, New Delhi	Shri Shishir Bansal
EH and S Cares, New Delhi	Shri A. K. Tripathi
Engineers India Limited, New Delhi	Shri A. K. Mishra Shri D. Jana (*Alternate*)
Indian Institute of Technology, New Delhi	Dr K. C. Iyer
Larsen and Toubro Ltd, Chennai	Shri M. P. Naidu Shri R. Shankar Narayanan (*Alternate*)
NTPC Ltd, New Delhi	Shri Satish Upadhyay
RICS School of Built Environment, Amity University Noida	Prof Joseph V. Thanikal
School of Planning & Architecture, New Delhi	Prof V. K. Paul Shri Abhijit Rastogi (*Alternate*)
Shelter Consulting Engineers, Noida	Shri Manoj Kumar Mittal
In personal capacity (*204, Sector A, Pocket-C, Vasant Kunj, New Delhi*)	Dr Vanita Ahuja
In personal capacity (*E-9, Gaur Green Avenue, Abhay Khand-II, Indirapuram, Ghaziabad*)	Shri Iftikhar A. Drabu
In personal capacity (*C-2/2324,Vasant Kunj, New Delhi*)	Shri Chandra Pal
In personal capacity (*411, Sector A, Pocket-C, Vasant Kunj, New Delhi*)	Shri Krishna Kant
In personal capacity (*608, Technology Apartment, I.P. Extension, Delhi*)	Dr S. N. Mandal
In personal capacity (*B-31*, *Manas Apartments, Mayur Vihar-1 Extension, Delhi*)	Shri V. K. Sharma
In personal capacity (*Flat No. 220, Ankur Apartments, Patparganj, Delhi*)	Dr V. Thiruvengadam
In personal capacity (*7A, Autumn Hue*, *Seasons, PPD Apartments, Kuravankonam, Kowdiar, Trivandrum*)	Shri Jose Kurian
In personal capacity (*P1/2, Block 2, Silver Estate Sector 50, Noida*)	Brig Vinod Nakra (Retd)

Working Group on Procurement Management, CED 29/P1/WG 6

Organization	*Representative(s)*
In personal capacity (*7A, Autumn Hue*, *Seasons, PPD Apartments, Kuravankonam, Kowdiar, Trivandrum*)	Shri Jose Kurian (***Convener***)
Indian Institute of Technology Delhi, New Delhi	Dr K. N. Jha Shri Santu Kar (*Alternate*)
Larsen and Toubro Ltd, Chennai	Shri K. P. Sudheesh Kumar
AECOM India Pvt Ltd, Gurugram	Shri Pawan Jaipuriar Ms Komal Verma (*Alternate*)
Shelter Consulting Engineers, Noida	Shri Manoj Mittal
In personal capacity (*81/200, 3rd Street, AH Block, Annanagar Chennai*)	Shri J. Balasubramanian
In personal capacity (*B-31*, *Manas Apartments, Mayur Vihar -1 Extension, Delhi*)	Shri V. K. Sharma
In personal capacity (*P1/2, Block 2, Silver Estate Sector 50, Noida*)	Brig Vinod Nakra (Retd)

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This standard (Part 7) is intended to provide aspects on procurement management as part of the construction project management, delineating the processes involved and the delivery systems, while procuring works, goods and services. The guidelines have been prepared following the generic structure of project management processes of procurement planning, procurement monitoring and procurement control. Users of this standard are encouraged to employ suitable construction management software as an aid to implement provisions of this standard.

The guidelines may be applicable in general to all construction projects. However, for smaller projects, the applicability of various provisions may be decided appropriately by the parties concerned.

The composition of the Committee responsible for formulation of this standard is given in Annex A.

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Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.gov.in

Regional Offices: *Telephones*

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002 — 2323 7617, 2323 3841

Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi KOLKATA 700054 — 2337 8499, 2337 8561, 2337 8626, 2337 9120

Northern : Plot No. 4-A, Sector 27-B, Madhya Marg CHANDIGARH 160019 — 265 0206, 265 0290

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113 — 2254 1216, 2254 1442, 2254 2519, 2254 2315

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